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ABSTRACT

Four case histories were studied in an on-going project to develop a method for user selection of purchased scientific and technical information services. The issues involved were: (1) the value of computer search services to a small branch of a company technical library; (2) the special decision-making factors used for selecting items of very high or low costs; (3) the judgement factors applied when purchasing expensive special topic bulletins; and (4) the differences in work environment and other variables between a university science library and an industrial research library. A survey of usage patterns for scientific and technical information services at the Exxon Research and Engineering Company Central Library was planned. (PF)

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TECHNICAL REPORT

ON

GENERALIZED METHOD FOR THE USER EVALUATION OF PURCHASED INFORMATION SERVICES

Contract No.: NSF C-1027

Project: Improved Dissemination and Use of Scientific and Technical Information

Report No.: 3 - Monthly Report

Period: October 1 to November 30, 1975

By

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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IR 003 328

A Generalized Method for the User ~~Evaluation~~
Selection of Purchased Information Services

Objectives and Definitions

The definition of the term services as used herein has been considered further in the light of its functional significance.

A "simple searching service" is one in which the question is completely defined before the search is started, and any restatement of the question represents a new search. The distinction lies in how the service is used, not the mechanics of the system. Redefinition of the question during the search requires a much higher degree of skill and training on the part of the user. Such redefinitions are characteristics of information analysis. In terms of the present contract Phase I is addressed to simple searching services, and Phase II will add the parameters for information analysis.

This statement of the critical distinction between Phase I and Phase II is taken in part from the training principles for engineers used by IBM: statement of the problem to be solved is called input to the system, process operations are internal to the system, and output is tailored to meet predefined needs. Two guiding principles are recognized:

a) the more sharply input can be defined, the easier it is to define an acceptable output, and the less problem it is to satisfy the qualitative aspects of user needs;

b) any interaction between the customer and the system during processing changes the input no matter how slight the change.

This creates a new statement of the problem, and costs which may be ruinous, unless the changes are made by an expert who understands completely the language of the machine as well as the language of the problem. This may save overall costs or it may not, since it depends on whether the time of such an expert is available on call, as well as whether he can do the job in enough less time to more than balance his higher unit rate.

This definition clarifies our concept of services to be included in Phase I, since it says that when a complex (computerized) service is being used for routine operation, this may be a simple search, even though the same equipment can be used in sophisticated ways for information analysis.

The title of this report has been reworded on a trial basis as "a generalized method for the user selection of purchased services," changing a word to selection instead of evaluation. The term "evaluation of information systems" has been used extensively in the literature, but with different meanings. The most frequent meaning is apparently the evaluation of performance of an individual system, addressed to system design. Only a few references by comparison deal with the comparative evaluation of different systems, which is our problem, for the user selection between competing services. This questions will be considered further, and comments are specifically invited.

Case Histories Considered

Four potential case histories were considered this month, relating to the definition of S.D.I. service needs and cost factors in special situations. Each of these is being examined for factors in the selection of services:

a) A small branch or special library

The use of mechanized or computerized searching services is frequently resisted by the small branch library, which sees the new service as incomplete, regardless of cost. A clear example appears in an exchange of letters in the issue of Special Libraries for November 1975, page 64: the librarian at the Marathon Oil Company research center (117 employees) points out the very high base cost of data management systems for a small user, and an author from Chevron Research (over 1,000 employees) replies that incremental use by branch libraries can be cheap and very useful, once the base charge is paid by a parent organization. The polemical tone of both writers makes it obvious that they are not speaking the same language.

A similar example is available for study within Exxon: the situation can be examined as a problem in the definition of needs, in a system which is considering a basic change. There may be strong hidden factors involved. The small branch or departmental library may be in essence an expansion of the personal library of the department manager, created as a service center and not just an information source. It operates in a closed market, which is not likely to be expanded regardless of any improvements. The special services it offers serve as a way of doing business, not just as a source of information. The most valuable parts of the system may be a browsing file of collected documents, abstracts or indexes, the skill of the staff indexer who creates this, and the familiarity of the department personnel with how it works. If the skilled staff could be replaced by a moderate to low-cost incremental information package, available from a parent organization, this would deprive the branch operation of its chief reasons for separate existence. Also, the minimum times required for the training or skill maintenance of staff users of a sophisticated new system are a larger burden, the smaller the operation.

In this situation, the consideration of costs suggests that at the best use of auxiliary information services may be to upgrade the work input to the indexer, whose final selection and integration of new material into the files is one of the most valuable services the staff performs. The new information costs may be used to pre-select items to be considered for special indexing, drawing either from the total flow of current source material or as a secondary supplement from the less productive sources, which take more time to find pertinent items.

An acceptable definition of costs may become key to pre-selection and feed to special indexing the type of items which have proved most useful to current operations. This may be based on such as operating terms (such as types of interaction effected) as on topical areas, or hierarchical relationships. Standard procedures are applicable to the analysis of current experience, to determine what specific files have been most powerful or most in need of improvement. Other aspects of the decision matrix can be considered from this same point of view.

b) Costs by range, not variation

Comparisons between competing services are not usually based on an exact claims, but compared to allow for differences in the service offered. The assumption is that market forces keep directly competing services close to each other in price, and that the service which costs more has something more to offer - if this feature is one you want to buy. To the extent that this is true, cost becomes a secondary factor in the selection between services, so long as they are within the same general range. This may be entirely contrary to the trade literature published by the vendors, who are highly cost conscious and anxious to use this point as a selling tool.

On this basis, there could be only three significant ranges of cost: on the market, too cheap, and too expensive. Differences within each range might be considered as relatively unimportant, although varying over as much as one order of magnitude including the average. Prices far below the average are suspect, because they suggest services inferior to the service offered. Prices within perhaps 50% of the average are assumed to correspond to desirable extra features or allowable economies, and may not be questioned seriously so long as the user has made up his mind as to what he wants. Prices above this range bring to use questions of their effect on total budgets, of available alternatives, and of the certainty of use sufficient to justify special purchase. Adjustments are also necessary for the number of customers, from a service which is cheap because of cost sharing on one end to a service which is expensive because it is proprietary, and distributes to other customers is rigidly excluded.

An example of this factor of costs by range in the decision of the central library on what to cancel the standing order for continuing to index volumes in series such as Bulletin, which are recognized as valuable tools for access to information. The problem is that Bulletin supplement 77 has now reached the range of $400-$50 per volume. Five such volumes appearing at unscheduled intervals in 1971 can ruin the book budget for the year in even a fairly large library. Prices at far above the average force the considerations of alternatives sources and procedures,

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